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## PROLEGOMENA TO A STUDY OF INTROSPECTION

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By E. B. TITCHENER

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We are not likely to remark, in any but a vague and general way, a change in which we are essentially concerned; *tempora mutantur, nos et mutamur in illis*. Yet those who remember the psychological laboratories of twenty years ago can hardly escape an occasional shock of contrast which, for the moment, throws into vivid relief the difference between the old order and the new. The experimenter of the early nineties trusted, first of all, in his instruments; chronoscope and kymograph and tachistoscope were—it is hardly an exaggeration to say—of more importance than the observer; and the observer had nothing more difficult to do than to analyse a chord, or to report the ‘fluctuation of attention,’ or to trace schematically the course of successive association. There were still vast reaches of the mental life which experiment had not touched; we believed, at least the enthusiasts among us, that the method would some day carry us to them; meanwhile, certain chapters of psychology were written rather in the light of ‘system’ than by the aid of fact. Now, twenty years after, we have changed all that. The movement towards qualitative analysis has culminated in what is called, with a certain redundancy of expression, the method of ‘systematic experimental introspection.’ Our graduate students—far better trained, it is true, than we were in our generation—sit down cheerfully to introspective tasks such as we had not dreamed of. And it is when some second-year graduate brings in a sheaf of reports upon Understanding or Belief, upon Recognition or Judgment, that the director of a laboratory has his historic sense aroused, and wonders what he, at the same age, could have made of a similar problem.

But if the individual is thus disposed to take for granted the development of the science, it is true, on the other hand, that his indifference is offset by a kind of self-consciousness on the part of the science itself. A great change has taken place, intensively and extensively, in the conduct of the introspective method; and with this practical change there has

grown up, naturally and as it were instinctively, a tendency to discuss the method, to trace its application, to classify the errors to which it is exposed, to set forth its scope and its limitations. What we knew about introspection, twenty years ago, is very fairly summed up in such a book as Sully's *Human Mind*.<sup>1</sup> To-day, if we are still far from agreement and from perfect comprehension, we have at least progressed beyond the stage of generalities to that of monographic detail. And our interest in method is evidenced on all hands: within the space of a year there have appeared Müller's special study of introspection in the field of memory,<sup>2</sup> and the more general articles by Anschütz,<sup>3</sup> Dugas,<sup>4</sup> de Sanctis<sup>5</sup> and Dodge.<sup>5a</sup>

In this and the following articles I shall be concerned with various phases of the introspective method, and with certain questions that are suggested by its use. I begin, in the present paper, with brief comment upon a number of special points. The treatment makes no pretence to be adequate, though it is, I hope, less scrappy in fact than it is in appearance. At all events, the following paragraphs express a single attitude toward psychology; and I deemed it unwise to attempt a description of the introspective method until I had defined, in this preliminary way, my position upon various controverted questions.

### 1. *The Status praesens*

It is worth while, at the outset, to define the standing of introspection as psychological method; and to this end we must know the opinions of the leading psychologists of our time. Let us take them country by country.

Stumpf affirms that experimental psychology is "in the main nothing else than a method for inciting, systematically and with objective control of conditions, to introspection."<sup>6</sup> Lipps declares that "the method

<sup>1</sup> J. Sully, *The Human Mind, a Text-book of Psychology*, i., 1892, 14 ff.

<sup>2</sup> G. E. Müller, *Zur Analyse der Gedächtnistätigkeit und des Vorstellungsverlaufes*, i., 1911, 61 ff.

<sup>3</sup> G. Anschütz, Ueber die Methoden der Psychologie, *Arch. f. d. ges. Psych.*, xx, 1911, 414 ff.

<sup>4</sup> L. Dugas, L'introspection, *Revue philos.*, lxxii, 1911, 606 ff.

<sup>5</sup> S. de Sanctis, I metodi della psicologia moderna, *Rivista di Psicologia*, viii., 1912, no. 1; reprinted in *Contributi psicologici del laboratorio di psicologia sperimentale della r. Università di Roma*, i., 1910-1911.

<sup>5a</sup> R. Dodge, The Theory and Limitations of Introspection, this JOURNAL, xxiii, 1912, 214 ff.

<sup>6</sup> C. Stumpf, *Erscheinungen und Funktionen*, 1907, 25 note.

(*Weg*) of psychology is first, last and everywhere the method of direct observation of the facts; . . . and this again is primarily introspection."<sup>7</sup> Wundt writes, in the same spirit: "The supreme advantage of the experimental method lies in the fact that it and it alone renders a reliable introspection possible, and that it therefore increases our ability to deal introspectively with processes not directly accessible to modification from without."<sup>8</sup> Müller, in his special context, tells us that "the scientific study of memory, if it is to be complete, cannot dispense with introspection," and that his own results "rest in large measure upon the use of the subjective method;"<sup>9</sup> and Anschütz, taking a more general survey of the field, characterises introspection as the "direct, primary, fundamental or essential method" of psychology.<sup>10</sup> Has Germany need of further witnesses? I will call only on Möbius: "Empirical psychology can be nothing else than introspection elaborated by reflection."<sup>11</sup>

"The first and indispensable source of knowledge of mental facts is the introspection of these facts by the individual who experiences them;"<sup>12</sup> "the foundation of psychological investigation is experience of the psychical facts; . . . this direct apprehension is usually termed introspection."<sup>13</sup> So speak Austrian psychologists.

"Introspection," says Binet, "is the basis of psychology; it characterises psychology in so precise a way that every study which is made by introspection deserves to be called psychological, while every study which is made by another method belongs to some other science."<sup>14</sup> Ribot, despite his championship of objective methods, is not far behind: "The method of introspection . . . is the fundamental method of psychology, the necessary condition of all the others. . . . The aptitude for introspection is not given to everyone; some possess it in high degree; these are the born psychologists."<sup>15</sup> And Dugas concludes his critical study in like terms: "Introspection is the fundamental, original and peculiar method of psychology."<sup>16</sup>

From France I turn to Italy. "The professional psychologists of our day," remarks Villa, "are agreed that introspection is the necessary and indispensable point of departure for any examination of psychical facts." De Sanctis describes the general methods of psychology as "introspection, actual or implied, in its two forms of auto-introspection and heterointrospection, confirmed and controlled by comparative external observation and by experiment." Introspection, he continues, is "the fundamental though not the exclusive method in psychology;" "all those who aim to be psychologists must, wherever possible, invoke the testimony of the observer's consciousness, or, if this appeal is ruled out by the nature of the procedure adopted,

<sup>7</sup> T. Lipps, *Leitfaden der Psychologie*, 1906, 42.

<sup>8</sup> W. Wundt, *Grundzüge der physiol. Psychologie*, i., 1908, 7.

<sup>9</sup> *Op. cit.*, 63.

<sup>10</sup> *Op. cit.*, 448.

<sup>11</sup> P. J. Möbius, *Die Hoffnungslosigkeit aller Psychologie*, 1907, 13.

<sup>12</sup> A. Höfler, *Psychologie*, 1897, 7.

<sup>13</sup> S. Witasek, *Grundlinien der Psychologie*, 1908, 92 f.

<sup>14</sup> A. Binet, *Introduction à la psychologie expérimentale*, 1894, 18.

<sup>15</sup> T. Ribot, in *De la méthode dans les sciences*, 1909, 230 f.

<sup>16</sup> *Op. cit.*, 625.

must be able logically to supply that testimony, and must be governed accordingly in the drawing of psychological conclusions."<sup>17</sup>

Psychological method receives but scanty treatment in Ward's *Psychology*. We have, however, the following definite statement: "Psychology may be individualistic without being confined exclusively to the introspective method. There is nothing to hinder the psychologist from employing the materials furnished by his observations of other men, of infants, of the lower animals, or of the insane; nothing to hinder him taking counsel with the philologist or even the physiologist, provided always he can show the psychological bearings of those facts which are not directly psychological."<sup>17</sup> Stout echoes and amplifies this doctrine as follows: "The psychologist has at his command a vast mass of data which are not due to introspection. . . . Thus we might have a kind of psychology without introspection, and yet quite distinct from physiology. What introspection does is to supply us with a direct instead of a hypothetical knowledge of mental process. It thus forms a source of psychological material which is invaluable and unattainable by any other means."<sup>18</sup> McDougall writes that "psychology finds itself compelled in an ever-increasing degree to recognise the co-operation in all mental process of factors that are unconscious and so cannot be introspectively observed; and though some of these may be inferred from the nature of the processes revealed by introspection, others can only be inferred from the study of movements and other bodily changes." Yet we read, in another place: "The physiological psychologist must avoid the error . . . of neglecting or despising the refinements and subtleties of the introspective psychologists. He must admit the primacy of introspective psychology, must recognise that all the objective methods of psychological study presuppose the results of the subjective or introspective method and can only be fruitful in so far as they are based upon an accurate introspective analysis of mental processes."<sup>19</sup> Myers, finally, lays it down as "a golden rule that introspection should never be omitted in a psychological experiment. . . . The dangers of directly deducing the mental state of an individual from observation of his behavior cannot be too strongly emphasised."<sup>20</sup>

James speaks emphatically: "Introspective observation is what we have to rely on first and foremost and always."<sup>21</sup> Ladd writes more cautiously of introspection itself; but he adds that "the method of indirect observation is inevitably connected with, and dependent upon, the method of introspection;" so that, for better or for worse, this direct method is the one reliance of psychology.<sup>22</sup> "The whole work of our

<sup>17</sup> G. Villa, La question des methodes en psychologie, *Rev. scientifique*, quatrième série, t. xiv., 22 Sept. 1900, 357 col. 1; cf. 359 col. 2, 362 col. 1 *sub fin.* See also the same author's *Contemporary Psychology*, 1903, 152, 164; ch. iv. must be read with caution, since the word Introspection carries different meanings. S. de Sanctis, *op. cit.*, 9, 14, 15.

<sup>18</sup> J. Ward, *Psychology*, in *Encyc. Britannica*, xxii, 1911, 548; cf. 599. G. F. Stout, *A Manual of Psychology*, 1907, 16.

<sup>19</sup> W. McDougall, *Physiological Psychology*, 1905, 2, 12 f.

<sup>20</sup> C. S. Myers, *A Text-book of Experimental Psychology*, i, 1911, 4.

<sup>21</sup> W. James, *Principles of Psychology*, i, 1890, 185.

<sup>22</sup> G. T. Ladd, *Psychology, Descriptive and Explanatory*, 1894, 14 ff., 20. Cf. G. T. Ladd and R. S. Woodworth, *Elements of Physiological Psychology*, 1911, 5: "It is only by the method of introspection that the actual and present facts of human consciousness can be reached."

modern psychophysical laboratories," says Münsterberg, "must be characterised as essentially introspection, but introspection under artificial conditions."<sup>23</sup> Hall strikes a dissentient note. "Formerly everyone supposed that self-observation, or looking in upon our own psychic processes, or the intensification of self-consciousness, was the oracle and muse of philosophic studies. Now, however, . . . it is coming to be seen that this method gives us access to but a very small part of the soul, as, like an iceberg, nine-tenths of which is submerged under water and only one-tenth is visible above the surface of the sea, in the same way unconscious and instinctive forces now seem to be dominant in human life, . . . and these can be studied only objectively by natural-history methods. We can reach this more comprehensive knowledge only by carefully recording descriptions of what we see in others."<sup>24</sup> This position is found in some recent text-books,<sup>25</sup> and appears also to be that of Dodge: "Introspection is only one of the indicators of mental reality. It is a real and important indicator, of peculiar value in special fields, but it is only one of many."<sup>26</sup>

I think that these quotations are representative, both of the science of psychology and of the authors quoted. If we may take them as representative, the following conclusions emerge:

(1) It is maintained that, were introspection impossible, we might still have a science of 'psychology,' a system of observations and inferences which could not be subsumed to any existing science. This assertion cannot, so far as I see, logically be gainsaid, though one may doubt whether in fact the 'psychology' would have arisen. The issue, however, does not seem to be worth debating.

(2) It is maintained that, for the description of the subject-matter of psychology, 'objective' as well as 'subjective' methods are necessary or valuable; in other words, that certain psychological facts must or may be obtained otherwise than (directly or indirectly) by way of introspection. I believe that this position, too, is logically defensible; but I am not sure that any psychological facts can be identified as facts obtained by objective methods.

By 'psychological facts' I do not mean 'facts which are of value to the system of psychology,' but—since we are talking of method—'facts got by psychologising.' The rigorous distinction of psychology, psychophysics and physiology has been called pedantic. I am sure, however, that the terms, strictly used, stand for three different attitudes toward experience, for three different forms of scientific interrogatory, and that

<sup>23</sup> H Münsterberg, *Psychology and Life*, 1899, 124.

<sup>24</sup> G. S. Hall, A Children's Institute, *Harper's Monthly Magazine*, cxx, 1910, 621.

<sup>25</sup> C. H. Judd, *Psychology: General Introduction*, 1907, 7; E. L. Thorndike, *The Elements of Psychology*, 1905, 321; perhaps, too, W. B. Pillsbury, *The Essentials of Psychology*, 1911, 6 f. It is not always easy to interpret the brief statement of method found in text-books.

<sup>26</sup> *Op. cit.*, 229.

to run them together indistinguishably is not to escape pedantry, but is rather to lapse from clear thinking.<sup>26a</sup>

I see, now, no logical reason why we should not, as things are, add to our knowledge, for instance, of the psychological nature of emotion by strictly objective observation. But I find no clear evidence of such attainment of psychological knowledge; the facts and uniformities due to objective observation appear to be, in every case, psychophysical or physiological. Perhaps some of those who habitually psychologise by objective methods may be induced, by this statement, to give an explicit account of their procedure and its results; discussion will be profitable in proportion as it deals with particulars. On the other hand, I find upon psychological facts which purport to be derived objectively an evident, sometimes a flagrantly evident, coloring of empathy or of introspective analogy. I therefore agree with Angell that "observation of others often makes us sensitive to psychological processes in ourselves which we should otherwise overlook," but that this is in practice the limit of its application.<sup>27</sup> The logical possibility of an 'objective' enrichment of psychology remains.

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<sup>26a</sup> I suppose that, in theory, the number of the sciences is indefinitely large; that there may be as many different sciences as there are discriminable cognitive attitudes to the empirical universe. In practice, however, the number will always be finite; the limitations of human interest, the pressure of practical needs, the narrow range of attainable fact, these and many other influences will always be at work to direct and restrict the scientific activity of an epoch. The sciences that we find established, or in course of establishment, thus correspond to cognitive attitudes which have received some sort of sanction from the *Zeitgeist*. Certain of these attitudes are still gross, and will presently be differentiated; others perhaps are mistakenly distinguished, and will presently be identified, or at least brought into relation. Meanwhile, the investigator follows his problem,—in the light of all the knowledge that he can obtain, and in any direction that seems to lead toward solution. He may, in his pursuit, take up many diverse attitudes; and who that knows the difficulty of constructive work in science will say him nay? Only it is well that he should change his attitude, not blindly and confusedly, but with realisation; that he should always, as we say, be 'sure of his ground'; that he should not ignore the methodology of his time, but should test and, if possible, improve it; and that, if he removes distinctions, he should transcend and synthesize rather than just obliterate.—

I add this Note after reading the Symposium on the Relations of Psychology and Medical Education published in the *Journ. Amer. Med. Assn.*, lviii., 1912, 909 ff. And I may end it by quoting the Baconian maxim: quod omnes scientiarum partitiones ita intelligantur et adhibeantur, ut scientias potius signent aut distinguant, quam secent et divellant.

<sup>27</sup> J. R. Angell, *Psychology*, 1904, 5. The terms 'objective' and 'subjective' are, perhaps, open to misunderstanding; for in one—and that a very important—sense the domain of introspection is no less 'objective' to psychology than is the field of external observation to physics or to biology. "The really objective method in psychology," says Lipps (*op. cit.*, 47), "is the observation of one's own conscious life. Without this, every method is subjective, i. e., is a method of arbitrary interpretation and of confirmation of preconceived opinions." In the present connection, 'subjective' means introspective, and 'objective' means non-introspective; I take the words as I find them, without prejudice to a future definition.

(3) It is maintained that introspection is the one distinctively psychological method, and that all objective data must, if they are to become psychological, be interpreted in the light of introspection. This position seems to represent our actual practice in psychology, and to possess a logical warrant at least as strong as that of its rival.<sup>28</sup>

Finally, if we consider the quoted passages from another point of view, we may conclude that

(4) The method of introspection, despite all attacks made upon it, is regarded by the great majority of present-day psychologists as the most important means of psychological knowledge; and that

(5) The method attacked and the method upheld are, in some instances, methods of an entirely different character; the term introspection is equivocal.

## 2. *Gross Differences in the Meaning of 'Introspection'*

(1) There is still need to distinguish the introspection of the psychological laboratory from the introspection of a moralising common-sense. For novelists and essayists are still ready to declare that the exercise of the introspective method is unwholesome; they speak of a morbid introspection; they advise us to eschew it, not to become preoccupied with our inner experience. The classical warning is that of Kant, who cautions his readers against keeping a diary of their thoughts and feelings; that way, he says, lie extravagance, distortion of perspective, perhaps madness itself.<sup>29</sup> I remember that, even in my own time at Leipzig, the student of experimental psychology was told, half in jest but fully half in earnest, that he ran the risk of the insane asylum. And within this twentieth century the reviewer of one of my books gravely doubts the after-effect upon character of certain prescribed experiments; dangerous possibilities are involved, risks to nerves; some curiosities are only to be gratified at too great a cost!

This misunderstanding hinges, of course, upon the meaning given to self-observation. Introspection, let us admit, is self-observation. And if by that we mean, as popular psychology means, a study of mind not for its sake but for ours; an

<sup>28</sup> It is the position taken, among writers of recent text-books, by M. W. Calkins, *A First Book in Psychology*, 1910, 6; R. M. Yerkes, *Introduction to Psychology*, 1911, 39. As regards logic, Wundt declares roundly (*Philos. Studien*, iv, 1888, 304): "Eine derartige Methode [eine Methode die bloss objektiv wäre, d. h. die Selbstbeobachtung ausschliesse] für die Psychologie verlangen, hiesse meines Erachtens eine Sinnlosigkeit verlangen."

<sup>29</sup> I. Kant, *Anthropologie in pragmatischer Hinsicht*, 1798, 11.

appraisal of our mental possessions; an absorption, anxious or complacent, in the strength of our intellect. the delicacy of our sentiments, the firmness of our resolution: then certainly self-observation is morbid and egotistical; we are living in a world of fictitious values. But if self-observation means, simply, psychological observation; and if observation in psychology has as its end a knowledge of mind, and not the glorifying or humiliation of the observer: then, just as certainly, introspection may be as impersonal, as objective, as matter-of-fact, as is the observation of the natural sciences. The psychologist observes himself, not because he thinks he is especially admirable, nor because he feels a peculiar need to keep watch over his inner life; in these respects he stands on the same level with all the rest of the world, and behaves as any other, non-psychological individual may behave; he observes himself, because his mind is the only mind directly accessible to him, and mind is the topic of his professional interest.

(2) More important, however, is the distinction of the critical and the precritical use of introspection. The precritical method has been roundly condemned by Comte, Lange and Maudsley. "We have no place," cries Comte, "we have no place, under any pretext, for this illusory psychology which is the final transformation of theology . . . This pretended psychological method is null and void in its very essence and conception . . . For two thousand years the metaphysicians have been cultivating psychology by its aid; and they cannot yet agree upon a single proposition that is intelligible and solidly established. . . . Introspection gives rise to almost as many divergent opinions as there are individuals who rely upon it."<sup>30</sup> Lange writes in like vein: "It would be quite useless to offer a prize to anyone who should hunt out a single real observation in the two thick volumes [of Fortlage's *System*]. . . . The boasted system of self-observation seems to be so much liked precisely because of its defects. For even though, as Kant feared, enthusiasm and hallucination are not in its train, yet it will always continue a means of lending to the most fanciful imaginations of metaphysic the appearance of empirical deduction."<sup>31</sup> And Maudsley complains that "there is no agreement between those who have acquired the power of introspection; and men of apparently equal cultivation and capacity will, with the utmost sincerity and confi-

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<sup>30</sup> A. Comte, *Cours de philosophie positive*, i, 1830, 34 ff.

<sup>31</sup> F. A. Lange, *History of Materialism* (tr. E. C. Thomas), iii, 1892, 171 ff.

dence, lay down inconsistent or directly contradictory propositions. . . . There is no witness who is so easily suborned to give false evidence, and whose testimony at all times requires such stringent cross-examination, as self-consciousness."<sup>32</sup>

The truth contained in these criticisms may, I think, be summed up in two propositions, which at the same time bring out the narrowness of the critical attitude. There is a great deal of error in the introspection of the precritical, pre-experimental period; but the error is due to the fact that the introspection was not a direct observation, but essentially a reflective interpretation in terms of some philosophical system.<sup>33</sup> There is, on the other hand, a great deal of true observation mixed in with the interpretation (Wundt has a good word to say even for Fortlage;<sup>34</sup> and Möbius points out that the oldest psychological achievement, the naming of our inner states, is also the greatest);<sup>35</sup> but the psychologists of a pre-critical, pre-comparative, pre-experimental day were at a woeful disadvantage; they had no criterion of general validity; they had no means of distinguishing the universal from the particular, or the objectively observed from the construc-

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<sup>32</sup> H. Maudsley, *The Physiology of Mind*, 1876, 16 f. Yet the same author writes in the same book (47) that the results of introspection "must, in the hands of competent men, be as useful as they are indispensable." Who is to judge of competence, if "there is no agreement between those who have acquired the power of introspection?" And how can a method be indispensable, if "it is of little value, because it has reference only to a small part of that for which its testimony is invoked" (18 f.)?

<sup>33</sup> Wundt has dealt faithfully with this phase of the question in various publications: e. g., *Beiträge zur Theorie der Sinneswahrnehmung*, 1862, Einleitung, xvi, ff.; *Selbstbeobachtung und innere Wahrnehmung*, *Philos. Studien*, iv, 1888, 292 ff.; *Die Aufgaben der experimentellen Psychologie*, *Essays*, 1906, 196 ff.; *Logik*, iii, 1908, 163 ff.; *Grundzüge der physiol. Psychologie*, i, 1908, 6, 419. Müller (*op. cit.*, 147) sketches the procedure as follows: "If one compares the hopeless sterility of these philosophical expositions with the overwhelming abundance of interesting and important facts that introspection has brought to light in the field of memory since the advent of experimental psychology, one is forced to conclude: the much vaunted introspective method of the philosophers was, in essentials, nothing else than the method of 'putative recollection.' The philosopher, who in all probability means to dispose of the doctrine of memory in a few days or even in a few hours, sits down to write, and tries by the aid of recollection to give an account of the regular course of the operations of memory in his own experience. The results obtained accord with the method employed."

<sup>34</sup> *Philos. Studien*, iv, 1888, 297: ". . . diesem Psychologen, bei dem sich manche feine und gute Bemerkungen finden . . ."; *ct. Grundz. d. physiol. Psychol.*, i, 1908, 6.

<sup>35</sup> *Op. cit.*, 13.

tively rationalised. Rightly to appreciate the method of the older psychology, then, one has to compare it with the Aristotelian physics, or with Schelling's and Hegel's philosophy of nature; one has to think of such books as Grotius' *De jure belli et pacis* or, at a lower level, as Browne's *Pseudodoxia epidemica*. The reader of these works, coming to them in the critical attitude of the nineteenth century, wonders that men of such grasp, such sanity, such learning, could also have been so warped, so trivial, so inconsequent, so lacking in perspective. There is no harm in the wonder; that may be the first step towards understanding. But our trio of critics pass straight from wonder to exaggeration; and then, having exaggerated, they condemn.

### 3. *Contradictory Results from Scientific Introspection*

Current introspection—the conduct of which I propose to discuss in another paper—is, therefore, to be distinguished from the introspection either of a moralising common-sense or of a rationalising philosophy. But current introspection, however safeguarded, does not itself bring us, in every case, to uniformity of result. I have referred elsewhere to a well-known instance.<sup>36</sup> Mach and Stumpf sat down together before a harmonium, in the physical laboratory at Prague, to decide the question whether attention to one of the component tones of an ordinary musical chord does or does not strengthen that particular tone. Mach declared that the intensification was quite clear; Stumpf could find no trace of intensive change. A like divergence, on a larger scale, has resulted from recent studies of the processes of thought; some observers find, while others as definitely fail to find, a non-imaginal element of thought. What is the value of a method which lands us in difficulties of this sort?

Those who see in this question the last word of destructive criticism may be reminded that no scientific method is infallible. Not long ago there was much talk about the *n*-rays; there has been a good deal of dispute about the electrically positive or negative character of certain radioactive phenomena; and there are still, I believe, astronomers who look sceptically upon the Flagstaff maps of the Martian canals. The difference between Mach and Stumpf is, after all, no more radical than the difference between two histologists, the one of whom reads anastomosis and the other mechanical apposition from the preparation before him. And the difference between, say, Bühler and Angell is no more radical

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<sup>36</sup> *Feeling and Attention*, 1908, 215 f.

than that between two physiologists the one of whom holds a myogenic, the other a neurogenic theory of the heart-beat. Psychology is not the only science in which the strict application of the best available method leads to opposite conclusions.<sup>37</sup>

But is there the same hope, in psychology, that the differences will presently be resolved? I see no reason for any but an affirmative answer. Repeated observations have shown me, *e.g.*, that Mach's result is often due to a confusion of tonal intensity with tonal clearness or vividness; let this confusion be cleared up, and an observer who has judged as Mach will now judge as Stumpf. Here, then, is a possible—and a very simple—explanation of the discrepancy. Should it prove, on trial, that Mach is free of this confusion, we are by no means at the end of our introspective tether: it may be that expectant attention gives rise, in his mind, to an intensive image, a sort of hallucination of the expected tone; such cases are known; and if the suggestion were verified, we could accept Stumpf's hypothesis of individual difference. But let both these explanations fail,—still there is no reason to despair: a more methodical series of observations, with variation of conditions, would either bring the two observers into agreement or would give us the key to their disagreement.

The question of the thought-element is more complicated; and its answer must come by way of a progressive refinement of method and a progressive differentiation of points of attack. No one will deny that the method of 'systematic experimental introspection' has furthered the psychology of thought and volition; no one, I imagine, supposes that the method has attained—has even approximated—its definitive form. It will probably emerge from its time of trial as a number of specific procedures, each one addressed to some specific aspect of the problem, and all alike safeguarded against preventable error; in other words, as a group of typical methods, comparable perhaps with the metric methods of psychophysics. The refinement and the differentiation will, however, need time and the cooperative labour of many minds.

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<sup>37</sup> Here is a pretty illustration: *Nature* for Oct. 1, 1908, prints side by side two physiological addresses; *The Relation of Physiology to Physics and Chemistry*, by J. S. Haldane, and *The Manifestations of the Principles of Chemical Mechanics in the Living Plant*, by F. F. Blackman (lxxviii, 553,556). The writers' conclusions are as different as they could well be. But if physiology flourishes in defiance of such division against itself, psychology need not be concerned at a controversy regarding the thought-processes.

A scientific movement should be judged at its best, and not at its worst: what should we think of the Freudian doctrines if we knew only the extravagances of their popular statement and the superficialities of some of their champions? Crude work has been done, no doubt, in the name of experimental introspection; crude work is done by the unskilled in every department of science. "Some of the studies in which introspection has been pushed farthest"—so a recent critic tells us<sup>38</sup>—"seem to approach the limit of uncritical procedure:" the meaning is that certain studies in which the writer has professed an exclusive or predominating reliance upon introspection are thus uncritical. I heartily agree. But in all fairness two remarks should be added: that work as uncritical has been done with professed reliance upon objective experimentation; and that 'some of the studies in which introspection has been pushed farthest' are ensamples of critical caution.

A criticism that constantly recurs, not in psychology only but in all the sciences, is the charge of preconception, of bias, on the part of the observer. "More than once it has been pointed out that the individual's answer to the question [of imageless thought] depends largely on the school in which he was trained. . . . At the heart of the matter I believe the real problem is not whether a given observer always finds sensory factors in the analysis of all his mental experience, but how any observer with the usual training could avoid finding them, whether they were necessary parts of that experience or not."<sup>39</sup> It seems to me that the criticism, as thus formulated, fails to hold the balance between two necessary but opposed factors in scientific progress, and that it is, accordingly, both unjust in temper and mistaken in fact. We have to recognise, on the one hand, that scientific advance, whether critical or constructive, is impossible apart from theoretical preconception. "How can a man have a critical judgment in scientific questions," asks Wundt, "and at the same time be impartial?"<sup>40</sup> And how, we might add, can a man put any question to mind or to nature without showing, in the very wording of his question, that he has been influenced by theory?<sup>41</sup> On the other hand, the history of science proves conclusively that a particular preconception, even though it is stamped with the highest scientific authority, and even though it may be fatal to the individual, is not a permanent bar to progress. Sooner or later, observations made in a given theoretical interest will be seen not to fit the theory; sooner or

<sup>38</sup> R. Dodge, *op. cit.*, 214 f.

<sup>39</sup> *Ibid.*, 223; cf. R. M. Ogden, *Psychol. Bulletin*, viii, 1911, 330 f.

<sup>40</sup> Ueber empirische und metaphysische Psychologie, *Arch. f. d. ges. Psych.*, ii, 1904, 334.

<sup>41</sup> A brilliant defence of unguided observation is offered by H. H. Turner. The Characteristics of the Observational Sciences, *Nature*, lxxxvii, 1911, 289 ff. "The perception of the need for observations, the faith that something will come of them, and the skill and energy to act on that faith—these qualities . . . have at least as much to do with the advance of Science as the formulation of a theory, even of a correct theory" (290). I should reply that the 'faith' and the 'perception of a need' represent a certain form of what I have called theoretical preconception; they constitute a bias, a guiding motive. It is not necessary that the observer take sides for or against a special theory: the point is that his observations are selective, and not made wholly at random.

later, observers 'with the usual training' will strike out new theories of their own.<sup>42</sup>

The criticism, then, fails to hold the balance between the necessity of a theoretical setting for observation and the investigator's readiness to correct or to change his theory in the light of observation. If it were valid, men of like training would always think alike, the pupil would never break away from the master, and the course of scientific advance would illustrate the preformational view of evolution. If it were valid, criticism would always be immanent, confirming or attacking from within the logical structure of a system, and the conflicts of nativism and empiricism, voluntarism and intellectualism, and their like, would be unknown.<sup>43</sup>

#### 4. *Introspection and Self-consciousness*

There is, of course, a sense in which the introspecting psychologist may be termed 'self'-conscious; he is observing 'his own mind,' the only mind directly accessible to him. And if nothing more were meant by the term self-observation, or by the statement that introspection is an interrogation of self-consciousness, no objection could be raised. But self-observation and self-consciousness are terms with many meanings. It is consequently difficult, at times, to know just what a writer intends by their use; and it is easy to misinterpret, even to caricature a perfectly harmless statement. I have no wish to

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<sup>42</sup> An instance is given by Turner, *op. cit.*, 292. Instructive in the same connection is A. Schuster, *The Progress of Physics during Thirty-three Years*, 1908.

Müller (*op. cit.*, 159) has a relevant passage. "The trained and experienced psychologist knows how often a really experimental study of the mental processes which appear under determinate conditions has led to the recognition that these processes have a different character, or take a different course, from that which had earlier been assumed on the ground of certain general preconceptions. He knows how often, in experiments which he has carried out himself, the course of the mental processes has been radically different from that which he had previously imagined; how often, in cases in which, as he thought, all the possibilities were familiar to him, the actual course of the experiments has shown that there was still another possibility, of which he had not the slightest inkling. Thus it was formerly thought self-evident that, in the comparison of two successive impressions, the perception of the second stimulus was always accompanied by a memory image of the first; though this view of the mechanism of comparison leads and led to a number of consequences which are often enough contradicted by experience."

<sup>43</sup> Anschütz (*op. cit.*, 491) deals with this matter as follows: "That experiment is for the most part simply a means of confirming preconceived opinions is an assertion which, while it may be true in occasional instances, can be maintained only by those who have themselves made as yet no serious experiment, and who assuredly have not experienced the very fruitful suggestion that even the most acute of *a priori* thinkers may derive from it." I may perhaps be allowed to refer also to my *Feeling and Attention*, 48, 198, 293 f.

exaggerate, and therefore I shall in this section be sparing with references; but I wish to be clear, and therefore I shall risk the charge of exaggeration.

I have the impression, then, that certain psychologists, in writing of self-observation, think of the 'mind' as in some way 'turning in upon itself,' very much as one might fancifully conceive of the eyes as turning about to view the brain; that this mental gymnastic appeals to them as something far more difficult of performance than the direction of the mind to the outer world; and that they are thus led to regard self-observation as the mind's crowning achievement, the signal difference between man and the lower animals. Mind, in some fashion, consciously makes itself its own object; gets out of itself, and then turns round to examine the self which it has left. I have the impression, further, that the self-consciousness which is thought by these psychologists to be involved in introspection is understood *im prägnanten Sinne*; that the psychological observer is supposed to be aware of himself as introspecting himself, aware of himself as observer and aware of himself as observed, while at the same time he is aware of the relation of the two selves, of the observing attitude which the one assumes to the other. If I am mistaken, so much the better; my account may still stand as a possible interpretation of loose speech, and as a warning against carelessness of statement.

For, as a matter of fact, introspection knows nothing of this sort of mind or self and its performances. Introspection is an interrogation of experience; as such, it issues either from a present conscious purpose or from a habit of observation which is the resultant of previous conscious purpose; and, in so far, it is the expression of 'reflection' or of 'reflective thought.' In so far, but no farther: it implies self-consciousness only in the sense and to the degree in which all scientific observation, that of physics and chemistry included, implies self-consciousness. Mental development must have reached a certain level before science is at all possible; but when science has become possible, the conditions are given for a psychology as well as for a physics and a physiology; the data of matter, of life and of mind are observable in essentially the same way. The older psychologies, however explicit as regards the difficulties and dangers of introspection, never describe the actual conduct of the method; nor could they if they had tried; for introspection on the schema which their authors imagined for it is a logical absurdity. But traditions are long in dying, and authority plays its part even in science—

with the result, in this present connection, that the sections on Method in a great many modern books are still sadly inadequate to the facts upon which the exposition of psychology is grounded.

In illustration of the views which I am here criticising, I will quote first a passage from Ward. "Not only is it not the same thing to feel and to know that you feel; but it might even be held to be a different thing still to know that you feel and to know that you know that you feel—such being the difference perhaps between ordinary reflection and psychological introspection."<sup>44</sup> The passage is expanded by Stout as follows: "The most important drawback [to introspection] is that the mind in watching its own workings must necessarily have its attention divided between two objects,—on the one hand, the mental operation itself which is to be observed, and on the other, the object to which this mental operation is directed. If I observe the process of seeing, I must attend at once to what is seen, and to the seeing of it. If I observe what takes place in attending, I must first attend to something, and then to the process of attention."<sup>45</sup> Subtleties of this sort perplex the student unnecessarily: though a few introspective exercises, under the conditions of the laboratory, may be relied upon to dispel the perplexity.

I refer, secondly, to a well-known passage in James' *Principles*. "It is very difficult, introspectively, to see the transitive parts for what they really are. . . . The attempt at introspective analysis in these cases is in fact like seizing a spinning top to catch its motion, or trying to turn up the gas quick enough to see how the darkness looks. And the challenge to *produce* these psychoses . . . is as unfair as Zeno's treatment of the advocates of motion . . ."<sup>46</sup> But for the picturesque-ness of the style, the sentences might have come from Maudsley.<sup>47</sup> It is only fair to add that James has previously given us an admirable account of introspection; that he is here writing in polemical vein; and that his later exposition shows how we may indeed 'produce' the psychoses in question without thereby annihilating them.

Finally, I mention the doctrine of introspection that Dürr sets forth in his continuation of Ebbinghaus' *Psychologie*. Our consciousness of time, Dürr thinks, can be accounted for only if we postulate 'acts of primary recollection,' in which we apprehend the 'just past' character of conscious contents: in which, that is, we are aware that a certain sensation was present a moment ago, that a certain idea just now cropped up, that a certain feeling was just now aroused.<sup>48</sup> These acts of recollection are 'produced acts of self-consciousness'; in other words, they are acts of self-consciousness that are directly dependent upon, or are immediately touched off by, such experiences as are fitted to serve as their vehicle or ground; they are not 'reproduced,' but stand to their conscious conditions in the relation which feeling bears to its con-

<sup>44</sup> *Op. cit.*, 599. The passage occurs also in the earlier form of the article.

<sup>45</sup> *Op. cit.*, 18. E. Rabier (*Leçons de philosophie*, i, 1896, 35) makes the 'drawback' an impossibility; "attention," he says, "is indivisible."

<sup>46</sup> *Op. cit.*, i, 243 f.

<sup>47</sup> *Op. cit.*, 17 (c). Maudsley himself gets the objection from Comte.

<sup>48</sup> H. Ebbinghaus u. E. Dürr, *Grundzüge d. Psychol.*, i, 1911, 503; ii, 1911, 221. The term 'act' is technical, corresponding to what Stumpf calls *Funktion* (i, 3).

ditioning sensation, or a melody to its conditioning tones.<sup>49</sup> Grant their existence, and the problem of introspection receives an 'excessively simple' solution: introspection is nothing else than "an enhancement of the conscious status of the acts of self-consciousness which are productively aroused by every experience."<sup>50</sup> Simplicity has its acknowledged charms; but, in this particular case, I must say with Marbe: "Diese Ansicht ist mir keineswegs geläufig."<sup>51</sup>

I have referred, purposely, to writers of unquestioned merit. If they are infected with the virus of self-consciousness, in the sense of this section, we may assume the same infection in psychologists of weaker constitution. To go further into detail would be to anticipate the topic of my next paper.

### 5. *Is Introspection Necessarily a Conscious Process?*

It is often said that introspection is itself a conscious process, and that therefore psychological observation must—by the introduction of this new conscious process—interfere with the consciousness which it aims to observe. The objection, again, takes us back to Kant: "psychological observation by its very nature alters and distorts the state of the observed object."<sup>52</sup> Kant was not an enthusiast on the subject of psychology.

We might, now, meet the objection on its own ground. Grant that the act of observing is an experience of the same kind as the experience that you wish to observe; and grant that its introduction must accordingly alter the total consciousness in which that experience is set. Still, the act of observing would, after practice, after it had become a habit, be essentially the same in all observations; the change that it made in consciousness would therefore be a definite, constant change,—a change which you might not be able to estimate or describe, but which you could rely upon to remain the same, in kind and in degree, for all sorts of consciousnesses. The result of psychological observation would thus be subject to error, but to what is technically known as a constant error; and there is nothing fatal to science in that; what science fears is the variable error, an error that changes from one observation to another, or from moment to moment of the same continued observation.<sup>53</sup>

<sup>49</sup> *Ibid.*, i, 444 f.

<sup>50</sup> *Ibid.*, ii, 221: "Eine Steigerung des Bewusstseitsgrades der Akte des Selbstbewusstseins, die von jedem Erlebnis produktiv angeregt werden."

<sup>51</sup> K. Marbe, review of E. Dürr, *Erkenntnistheorie*, *Zeits. f. Psychol.*, lx, 1911, 115, 121.

<sup>52</sup> I. Kant, *Metaphysische Anfangsgründe der Naturwissenschaft*, 1786, x. f. Cf. J. B. Meyer, *Kant's Psychologie*, 1870, 207 ff.

<sup>53</sup> I do not here discuss the more usual reply to the objection,—the reply that introspection is, in strictness, retrospection.

It is, however, needless thus to face a difficulty until one is sure that the difficulty exists. What are the facts about introspection, as the method is employed in current experimental work? Is introspection necessarily a conscious process?

Long before the days of the *Aufgabe*-psychology, Wundt had answered this question in the negative. Wundt, it will be remembered, affirms that experiment not only safeguards introspection, but actually makes introspection, as a scientific method, possible.<sup>54</sup> Here, then, is his reply to Kant. "The objection overlooks the enormous influence exerted, in these as in all observations, by the mechanism of habit, by the practice which results from the frequent repetition of similar observations. *In his attention to the phenomena under observation*, the observer in psychology, no less than the observer in physics, *completely forgets to give subjective attention to the state of observing*. So long as this state is felt to be unnatural and itself incites to reflection, so long, of course, observations in both sciences are unreliable; and it is therefore obvious that, in both fields, the special subjective art of experimental observation, as well as the external technical procedure, must be learned and practised."<sup>55</sup> Nowadays, of course, we should supplement this account by a reference to the 'purpose' to introspect and its gradual lapse from a psychophysical to a physiological status.<sup>56</sup> But our reply to the general question would be the same: introspection, in the ordinary course of psychological investigation, is not as such a conscious process.

We have, in fact, but very scanty knowledge of the experiences in which introspection as a conscious process does take part. The introspective exercises set to the beginner, in laboratory drill-courses, are of an extremely simple kind; and the *bona fide* beginner does not bother about the 'state of observing.' The only cases of such concern that I remember, from all my years of teaching, were furnished by relatively mature students of philosophy who, for one reason or another, desired an elementary laboratory training, and who brought to their work a sophisticated interest. Nothing can be made of such students until the teacher has won their goodwill; and when that has been gained, they are ready to follow instructions, and to forget themselves in the experiment. On the other hand, the reports of research-work usually pass over, with mere mention, the preliminary experiments of the period of practice; the observers, as we know them, are already trained; the 'state of observing' has already been mechanised.

We have, it is true, a number of recorded instances in which intro-

<sup>54</sup> E. g., *Phil. Studien*, iv, 1888, 303; cf. note 8, above.

<sup>55</sup> W. Wundt, *Logik*, ii, 2, 1895, 175 f. Italics are mine.

<sup>56</sup> I have discussed, in my *Thought-processes*, the effect of a 'purpose to introspect' and the more general question of the lapse of the *Aufgabe* from consciousness. Müller's detailed study of the *Selbstbeobachtungsabsicht* (*op. cit.*, 72 ff.) will be reviewed in another paper.

spection 'during the course of the observation' has interfered with an experiment. Usually, however, the interference is due, not to the irruption into consciousness of introspection itself, but simply to the premature arrest of the observation at some point which has surprised or interested the observer, or to which his attention has been directed by the phrasing of the instruction. Ach tells us of observers who, from misunderstanding of instruction in the simple reaction experiment, concentrated upon the strain-sensations of the fore-period, and thus, to all intents, broke off the experiment in what should have been its initial stage.<sup>57</sup> More to the point, perhaps, is another remark of Ach's. "Observer H was led, by the questions put to him, to observe his attitude (*Verhalten*) on the apperception of the stimulus in the main-period; he was thereby thrown into a state of confusion, which influenced unfavorably the further course of the process."<sup>58</sup> If 'attitude' here means 'state of observing' we have, in this case, the appearance of introspection as a conscious process, though we are not informed as to its nature or composition. Such cases, Ach says, were rare.

I had thought that light might be thrown upon introspection, as an occasionally conscious process, by the recent studies of the acquisition of motor skill, in which the process of learning is set forth from its beginning. If, however, these studies contain relevant observations, I have unfortunately missed them. Book, for instance, writes: "A well-known difficulty encountered in getting reliable introspective data is to keep consciousness from concerning itself with the observing act. This was met in the present experiment by having each learner take care always to write at a maximum rate and without thinking of how the work was done or of how attention was working."<sup>59</sup>

#### 6. *Non-introspective Characterisations of Mind*

It is a fact obvious enough, but sometimes lost sight of, that a characterisation of mind need not, just because it characterises a 'mental state,' therefore be introspective. Introspection approaches mind from the special standpoint of descriptive psychology. But mind is approached from many other standpoints: from that of moralising common-sense, from that of philosophical reflection, from that of biology, from that of everyday converse. In strictness, no one of these standpoints is capable of furnishing introspective data: introspection demands, if systematic, the carefully planned observations and the trained observers of the psychological laboratory and, if casual, an ingrained habit of observation that has been moulded in the laboratory.<sup>60</sup>

I am aware, of course, that the non-introspective attitudes

<sup>57</sup> N Ach, *Ueber die Willenstätigkeit und das Denken*, 1905, 37; cf. *Thought-processes*, 238 f. Cases of this sort are, I imagine, familiar to all investigators of the 'higher' intellectual processes.

<sup>58</sup> *Ibid.*, 22. Cf. Müller, *op. cit.*, 74.

<sup>59</sup> W. F. Book, *The Psychology of Skill, with Special Reference to its Acquisition in Typewriting*, 1908, 17.

<sup>60</sup> I do not forget the questionnaire and the mass-experiment. But these, to be of value, must be very simple exercises in introspection, planned and tested by the trained psychologist. And I doubt if, at the best, their value is more than confirmatory. Cf. Müller, *op. cit.*, 146.

to mind do, oftentimes, furnish suggestion, and even material, that may be of high value to the descriptive psychologist. There are two reasons: that they are attitudes familiar to the psychologist in his own experience, and therefore comparable or interchangeable with the other attitude, of introspection; and that their determination, as traditional or historical attitudes, may be of a mixed or, to speak more accurately, of an undifferentiated nature, and may therefore contain the primule of what, at a later stage of development, is a truly psychological 'set.' But these facts do not affect the general statement.

I quote once more from Stout. "There is no fallacy, obscurity or ambiguity in the statement that when I have toothache I dislike it very much, or that I was afraid when I saw a white figure in the churchyard. There is no fallacy or ambiguity in the statement that feeling pleased is different from feeling displeased, or that when we are fully convinced that an action is totally impossible, we cannot voluntarily determine to perform it. Facts of this kind can be observed with ease and certainty by everyone. Now if introspection could only supply us with such simple and obvious data, it would none the less be of essential value. It would supply us with the general terms in which to describe mental process."<sup>61</sup> I cannot imagine anybody but a professional psychologist declaring that 'feeling pleased is different from feeling displeased.' As for the other instances: I can well imagine a man's saying "The one pain I can't stand is toothache," or "I must confess that I am still afraid of ghosts,"—and I can well imagine a prolonged argument on the question whether one can ever decide to do what one knows to be impossible,—without the remotest reference or the slightest appeal to introspection.

Thorndike, again, in a rough list of the 'mental facts' which form the subject-matter of psychology, mentions "ideas, opinions, memories, hopes, fears, pleasures, pains, smells, tastes, and so on."<sup>62</sup> But what are 'opinions' doing in that galley? In what sense is an 'opinion' to be included in a "list of states of mind?" There is a psychology of opinion, as there is a psychology of assumption, of working hypothesis, of belief; but the opinion as opinion is not material for psychology. One wonders, indeed, whether the presence of this term will not lead the reader to misinterpret the rest. In phrases like "I acted upon the idea that he was not in earnest," "memories of a long life," "he never lost the hope of educating himself,"—in phrases like these, the words 'idea' and 'memories' and 'hope' are not psychological; and yet it is in such meanings that they go best with the word 'opinion.' For further discussion of this point, in a special case, I refer to the paper entitled *Description vs. Statement of Meaning*, published in the last number of the JOURNAL.

On the other hand, the pragmatic attitude of daily life may, on occasion, be identical with the introspective attitude of the psychologist. Müller instances the layman, suddenly made aware by a 'psychological apperception' that his visual memory-image of a colored object is itself colorless.<sup>63</sup> We all know of similar cases. A child of six once asked me how it was that, if you shut your eyes, you could see pictures of

<sup>61</sup> *Op. cit.*, 16 f.

<sup>62</sup> E. L. Thorndike, *The Elements of Psychology*, 1905, 1.

<sup>63</sup> *Op. cit.*, i, 1911, 70; cf. 105.

things that were not there. The same child at nine betrayed by a casual remark that she, and her elder sister of eleven, possessed and had discussed number-forms. A chance conversation at a dinner table brought out the fact that some of the company saw colors, and some saw only greys, in their dream scenes. Anecdotes of mental peculiarity find their way into print, and may form the starting-point of studies like Galton's enquiry into mental imagery.<sup>64</sup> The psychologist will, indeed, always be quick to take advantage of observations of this kind, when they come his way; he will question and compare, and may perhaps be drawn into a serious investigation. It is clear, however, that the occasional introspection is of value to psychology only if the psychologist is there to pick it up.

The training of which I have spoken, as necessary to a systematic introspection, is essentially the same as the training necessary to reliable observation in physics or biology. There is nothing mysterious or esoteric about the introspective method. If there are differences in introspective ability, so also are there differences in mathematical, musical, linguistic ability,—in theoretical and practical ability of every kind. A high degree of native ability may shorten the period of apprenticeship; but our most gifted musicians, our ablest engineers, must still be trained: and, conversely, a very slender ability may be brought, by a well-directed course of training, to very respectable performance. Introspection is a technical method, and is best learned in a technical school; like other technical methods, it is best learned while the learner is still young; it is, however, a method which any normal person, coming to the task with goodwill and application, may understand and acquire.

The undergraduate, no doubt, finds introspection difficult. When he is called upon to observe the negative after-image, or to describe his sensations of cutaneous warmth and cold, he is likely to draw an unfavorable comparison between psychology and physics; the objects of psychological observation 'can't be got hold of,' are—in his immature vocabulary—'vague' and 'abstract.' The difficulty is real; we have all suffered from the elusiveness, the intangibility, of mental processes. We seek to reassure the beginner by pointing out that elusiveness and intangibility are, after all, relative terms, and that practice will do for him what it has done for others before him. At this stage of his training we can hardly say more. In fact, however, the difficulty goes deeper: for the break with common sense is made earlier and more definitely in psychology than it is, perhaps, in any other science. The student of physics or chemistry or biology may hold, for some little time, to his common-sense attitude; the materials with which he has to deal are still, in large measure, the 'things' of everyday life; his experiments and formulas have a familiar setting. Psychology, on the other hand, enjoins a new attitude to mind; unlearning begins with learning; the laboratory offers an immediate challenge to tradition and opinion. From the pedagogical point of view, psychology is here at a disadvantage,—though it may be questioned whether the disadvantage at the start is not offset by advantage for the future; whether the student of physics or biology, when he comes to physicise or biologise the whole of experience, is not handicapped by his youthful alliance with common sense; whether the student of psychology does not gain, in the long run, by the greater severity of his early discipline. Be this as it may, the difficulty which the beginner feels is, in so far, a difficulty which he is unable to express, and which—if formulated for him—he is unable in any intimate way to understand. It should not be mini-

<sup>64</sup> F. Galton, *Inquiries into Human Faculty*, 1883, 83.

mised: it should not, either, be misinterpreted. Scientific method is a genus with many species; and training in the method of any one science is only specifically different from training in the method of any other.

### 7. *What May We Ask of Introspection?*

Introspection can never give us a system of psychology. The 'pure' psychology of the middle nineteenth-century was, as we have seen, systematised by metaphysics; and modern systems, in order to be systematic, inevitably appeal to something—to the unconscious, to the nervous system, to laws of mental growth and mental organisation—which is not discoverable by introspection. How, indeed, should a method, of itself, yield a science? Introspection is psychological observation; and observation is a way of getting facts, 'observations' in the passive sense, data, materials of science. I hope to discuss, in a later paper, the nature and the range of the facts which introspection reveals: that is a question by itself. Meanwhile, "introspection, viz., the observing and dissecting of experience, is quite like observing the things of sense; there is no more virtue in it, but also no less. It is not for introspection to make explanations, but to discern particular facts."<sup>65</sup>

A good deal of misunderstanding is due, simply and solely, to the ambiguities of language. What, for instance, does a writer mean by 'psychological methods'? He may mean the specific methods which the psychologist, in his capacity and by his training as psychologist, employs in his psychologising: methods, therefore, which have not been acquired by the physicist and physiologist. Or he may mean methods which the systematising psychologist employs in the construction of a rounded science of psychology: methods, therefore, which—so far as they are not specifically psychological in the sense just indicated—are common to all systematisers of science. When Wundt says: "All psychology rests upon introspection,"<sup>66</sup> he is thinking of the former meaning of psychological method; when Ladd says: "To observation, direct and indirect, and to analysis by introspection, reflection, and experiment, we add induction as the necessary method of psychological science," and when to observation, analysis and induction he further adds the "genetic method,"<sup>67</sup> it is obvious, without the telling, that he has in mind the systematic presentation of mental life, the psychological treatise. What, again, is meant

<sup>65</sup> W. Mitchell, *Structure and Growth of the Mind*, 1907, 423. Cf. my *Text-book of Psychol.*, 1910, 38 ff.

<sup>66</sup> W. Wundt, *Logik*, ii, 2, 1895, 170.

<sup>67</sup> G. T. Ladd, *Psychology, Descriptive and Explanatory*, 1894, 24 f.

by 'introspective psychology'? The words may mean 'a system of psychology which contains (or consists of) only what is furnished by introspection,'—that is, they may be interpreted to make nonsense. Or they may mean 'a system of psychology in which introspection is regarded as the sole, peculiarly psychological method'; in this sense they cover such a system as is set forth in Wundt's *Physiologische Psychologie* and *Völkerpsychologie*,—cover, for that matter, practically all our current systems. Or again they may mean 'psychology in so far as it is introspective,' 'that body of psychological materials which is furnished by introspection,' and thus may carry no reference at all to a psychological system. But suppose that the phrase is used in this third sense, and is read in the first: then a misunderstanding has arisen, from purely verbal suggestion, before there has been opportunity for mutual explanation.

The limits of introspection, on the side of system-making, have often been pointed out; Möbius' discussion may be taken as typical. Dodge is, however, mistaken in his belief that Möbius teaches "the fallaciousness of all introspection and the consequent hopelessness of all empirical psychology."<sup>88</sup> Möbius does not underestimate the difficulties of introspection; but he nowhere calls it fallacious. Psychology is hopeless because "the psychologist has absolutely nothing more than introspection and the argument from analogy;" and as these are inadequate to a science, "psychology must cross the borderline of empiricism and reach a hand to metaphysics."<sup>89</sup> I agree with Möbius and Dodge that introspection cannot make a science; I agree with Dodge, and disagree with Möbius, in thinking that we can achieve a science of empirical psychology.

*Summary.*—The method of introspection is still generally regarded as the most important means of psychological knowledge. The introspection of the laboratory must, however, be distinguished from that either of a moralising common sense or of a rationalising philosophy. In its scientific form the method is its own test; contradictory results mean an imperfect control of the conditions of observation.

Introspection implies self-consciousness only in the sense and to the degree in which all scientific observation implies self-consciousness. And its employment need not be conscious; for time and experience reduce it to a habit.

Introspection presupposes a particular scientific standpoint, that of descriptive psychology. It is not, however, adequate of itself to furnish a psychological system; like other scientific methods, it supplies materials which, by the aid of explanatory principles, may be worked up into a system.

<sup>88</sup> *Op. cit.*, 214.

<sup>89</sup> *Op. cit.*, 13, 14, 51 f., 68.